

CASE STUDY

Wind and Solar Power for Remote Rail Crossings



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The Requirement

Following a number of high profile incidents at un-gated railway crossings in the UK, including deaths, Network Rail investigated ways to improve the safety at rural railway crossings. Network Rail is responsible for the majority of the rail infrastructure in Great Britain and they set about identifying high risk sites to the public and where disruption to the network had occurred from accidents. Electric gates and CCTV systems were proposed to reduce the risks but a large number of the rural sites were without a grid power supply.



Marlec Engineered Solution

Tapping into the grid supply along the railway network was not possible as the security and integrity of the network could not be compromised and thus the contractor, Balfour Beatty, were required to find an alternative low power solution for the equipment. As a specialist renewable energy supplier for over 30 years Marlec Engineering were approached to design and provide a complete power generation system for each site. The countrywide locations ranged from the North Scotland to South West of England and therefore a hybrid Wind / Solar battery charging system was a clear necessity for year round power delivery. As site visits by engineers would be rare reliability was paramount in both energy generation and durability of the equipment employed. These charging systems would need to be self sufficient and capable of withstanding exposure to the harshest of weather conditions.



Marlec's engineers calculated the energy requirement of the CCTV and gate systems concluding that the solution lay in a balance of both a wind turbine and solar panel at each site. The combination of our professional FM910-4 Windcharger with a 240W solar panel would provide the level of reliability required at these demanding locations. Using our detailed understanding of the characteristics and battery charging capabilities of our Windchargers and solar panels we were able to accurately model realistic performance indications for Network Rail.



The Rutland FM910-4 Windcharger was ideal for this application for reasons over and above the fact that its power specification fitted.

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Firstly, Balfour Beatty required the assurance of a product with a proven heritage to perform in rural environments and secondly the turbine needed to be extremely quiet in operation as some crossings were close to residential areas.

Marlec worked closely with the CCTV provider, the tower manufacturer and all other parties to provide Balfour Beatty with a complete system designed to their client's needs. A trial site was chosen by Network Rail in order to test the system suitability, which lasted for 4 months.

National Roll Out

Upon the successful completion of the trial, Network Rail sanctioned the national roll out at approximately a further 400 rail crossings.

The entire project from initial supply to completed installation took just 9 months. Marlec provided the system in a plug and play format to enable speedy and safe installation of the DC charging equipment as well as training for the teams of installers in the assembly and installation process for the complete FM910-4 Windcharger and solar panel package.

About Marlec

Established in 1979 to develop small wind turbines Marlec continues to design and manufacture our range of Rutland Windchargers. Over 100,000 of these turbines have been used around the world on land and sea in some of the harshest conditions from Antarctica to the Sahara Desert. Solar panels were introduced into the business a few years later as a complimentary product line and as expertise was grown the hybrid energy solution became successful and popular. The Company is based in the East Midlands of the UK and more information can be found at

www.marlec.co.uk



Marlec Engineering Co Ltd

Rutland House | Trevithick Rd | Corby | Northants | NN17 5XY
Tel: +44 (0)1536 201588 sales@marlec.co.uk www.marlec.co.uk

